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| APPLICATION NO.   | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO.  | CONFIRMATION NO. |
|---|-------------|----------------------|----------------------|------------------|
| 09/553,166  | 04/19/2000  | Hao Jiang            | MSI-442US            | 3996             |
| 22801   | 7590        | 10/01/2004           | EXAMINER             |                  |
| LEE & HAYES PLLC<br>421 W RIVERSIDE AVENUE SUITE 500<br>SPOKANE, WA 99201 |             |                      | OPSASNICK, MICHAEL N |                  |
|   |             |                      | ART UNIT             | PAPER NUMBER     |
|   |             |                      | 2655                 | 6                |

DATE MAILED: 10/01/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

09/553,166

**Applicant(s)**

JIANG ET AL.

**Examiner**

Michael N. Opsasnick

**Art Unit**

2655

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 22 March 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-50 is/are pending in the application.
- 4a) Of the above claim(s) 1-8,25-30 and 47-50 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 9-24,31-42 and 46 is/are rejected.
- 7) ☒ Claim(s) 43-45 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

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### **DETAILED ACTION**

1. An election was made without traverse to prosecute the invention of using noise ratios to determine a type of signal, claims 9-24, and 31-46. Claims 1-8,25-30, and 47-50 withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

#### ***Allowable Subject Matter***

2. Claims 43-45 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

#### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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4. Claims 9,15-20,24,34,40-42,46, rejected under 35 U.S.C. 102(b) as being anticipated by Scheirer et al ("Construction and Evaluation of a Robust Multifeature Speech/Music Discriminator, 1997, IEEE, pp 1331-1334).

As per claims 9,34, Scheirer et al teaches:

"separating.....frames" as separating the audio signal (page 1331, col. 1 lines 37-45)

"extracting....frames" as calculating the spectral bands (page 1331, col. 2 lines 20-26)

"using at least the periodicity.....music or sound" as classifying the audio as speech or music (page 1331, col. 1 lines 1-6)

As per claims 15,18,40 Scheirer et al teaches:

"extracting a spectrum flux.....using the periodicity feature.....music or sound" as using a spectral flux calculation to determine music versus speech (col. 2 lines 37-45)

As per claim 16, Scheirer et al teaches determining the spectral amplitude using a transform (page 1331, col. 2 lines 36-39)

As per claims 17,18, Scheirer et al teaches an energy calculation to determine the rms thresholds to determine speech or music.

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As per claims 19,24,46, Scheirer et al teaches data set on a computer to be used for the processing (page 1333, col. 1 lines 19-24)

As per claim 20, Scheirer et al teaches:

“separating at least a portion....frames” as separating the audio signal (page 1331, col. 1 lines 37-45)

“extracting a periodicity feature.....frames” as calculating the spectral bands (page 1331, col. 2 lines 20-26)

“using at least the periodicity....music....vocals” as classifying the audio as speech or music (page 1331, col. 1 lines 1-6).

As per claims 41,42, Scheirer et al teaches:

“extracting.....frames.....on the extracted line spectrum pairs” as using the Gaussian models in feature space (page 1332, lines 54-60)

“comparing the input Gaussian model.....gaussian models” as nearest neighbor comparison (page 1332, col. 1 lines 60-70);

“identifying.....gaussian model.....determining a distance.....model....classifying....threshold value” as comparing, contrasting, and choosing with less error (page 1332, col. 2 line 46 – page 1333 col. 1 line 8).

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 10-14, 21, 22, 31-33, 35-39, are rejected under 35 U.S.C. 103(a) as being unpatentable over Scheirer et al in view of Nishiguchi et al (5630012).

As per claims 13,21,31,38, Scheirer et al teaches the related/dependent limitations of the independent claim, claim 9; and furthermore teaches energy discrimination (page 1331, col. 2 lines 15-35), but does not explicitly teach splitting the audio signal into bands, and calculating a periodicity of all the bands, as claimed in dependent claim 9. However, Nishiguchi et al (5630012) teaches splitting the audio signal into multiple bands and measuring for V/UV (col. 4 lines 25-40). Therefore, it would have been obvious to one of ordinary skill in the art of audio processing to modify the teachings of Scheirer et al with band based measuring because it would advantageously carry out stable discrimination of voiced sounds (Nishiguchi et al (5630012), col. 3 lines 33-49).

As per claims 14,39, the combination of Scheirer et al in view of Nishiguchi et al (5630012) teaches extracting full band periodicity, and classifying as sound if the periodicity exceeds a threshold value (as determining pitch bands and determining a V/UV decision -- Nishiguchi, col. 4 line 58 -- col. 5 line 10)

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As per claims 10,32,35, the combination of Scheirer et al in view of Nishiguchi et al (5630012) teaches judging noise in a frame of data, and using that ratio to determine V/UV (Nishiguchi, col. 8 lines 55-61)

As per claims 11,32,36, combination of Scheirer et al in view of Nishiguchi et al (5630012) teaches calculating a SNR and determining the sound to be noise based on this ratio (Nishiguchi, col. 7 line 55 – col. 8 line 18)

As per claims 12,22,37, the combination of Scheirer et al in view of Nishiguchi et al (5630012) teaches extracting full band periodicity, and classifying as sound if the periodicity exceeds a threshold value (as determining pitch bands and determining a V/UV decision -- Nishiguchi, col. 4 line 58 – col. 5 line 10).

As per claim 23, the combination of Scheirer et al in view of Nishiguchi et al (5630012) teaches extracting full band periodicity, and classifying as sound if the periodicity exceeds a threshold value (as determining pitch bands and determining a V/UV decision -- Nishiguchi, col. 4 line 58 – col. 5 line 10)

As per claim 33, Scheirer et al teaches:

“extracting a spectrum flux.....using the periodicity feature.....music or sound” as using a spectral flux calculation to determine music versus speech (col. 2 lines 37-45).

### ***Conclusion***

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Please see related art listed on the PTO-892 form.

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**8. Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks

Washington, D.C. 20231

**or faxed to:**

(703) 872 9314,

(for informal or draft communications, please label "PROPOSED" or "DRAFT")

Hand-delivered responses should be brought to Crystal Park II, 2121

Crystal Drive, Arlington. VA., Sixth Floor (Receptionist).

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Opsasnick, telephone number (703)305-4089, who can be reached from Tuesday-Thursday, 9am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ms. Doris To, can be reached at (703)305-4827. The facsimile phone number for this group is (703)872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group 2600 receptionist whose telephone number is (703) 305-4750, the 2600 Customer Service telephone number is (703) 306-0377.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

mno

6/23/2004

*Vijay Chawan* 6/24/04  
VIJAY CHAWAN  
PRIMARY EXAMINER